



1430 U.S.PTO

031004

VENETIAN BLIND HAVING A MOTORIZED DRIVE MECHANISM

22386 U.S.PTO
10/800187

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BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a Venetian blind, and more particularly to a Venetian blind having a motorized drive mechanism to lift and lower the slats of the Venetian blind automatically without needing the manual work.

2. Description of the Related Art

A conventional Venetian blind comprises a headrail, a plurality of slats mounted on the headrail, a roller rotatably mounted in the headrail and connected to the slats for lifting and lowering the slats by rotation of the roller, a shaft tube secured on the roller for rotating the roller, a driven wheel secured on an end of the shaft tube for rotating the shaft tube, and an endless lift cord removably mounted on the driven wheel. In operation, the lift cord is pulled downward to rotate the driven wheel which rotates the shaft tube which rotates roller so as to lift and lower the slats by rotation of the roller. However, the endless lift cord is depending from the headrail and is reached by a child, so that the child is easily tangled by the endless lift cord, thereby causing danger to the child.

The primary objective of the present invention is to provide a Venetian blind having a motorized drive mechanism to lift and lower the slats of the Venetian blind automatically without needing the manual work.

Another objective of the present invention is to provide a Venetian
5 blind, wherein the motorized drive mechanism is operated to lift and lower the slats automatically, so that the Venetian blind needs not to provide the lift cord, thereby preventing a child from being tangled by the lift cord so as to ensure the environmental safety of the house.

A further objective of the present invention is to provide a Venetian
10 blind, wherein the motorized drive mechanism can be controlled by a remote controller, thereby facilitating a user operating the Venetian blind to lift and lower the slats.

A further objective of the present invention is to provide a Venetian
15 blind, wherein the Venetian blind is assembled easily and conveniently, thereby facilitating the user mounting the Venetian blind.

In accordance with the present invention, there is provided a Venetian blind, comprising a main body, a transmission mechanism, and a motorized drive mechanism, wherein:

the main body includes a headrail, a plurality of slats mounted on the
20 headrail, and a roller rotatably mounted in the headrail and connected to the slats for lifting and lowering the slats by rotation of the roller;

the transmission mechanism is mounted on the main body and includes a shaft tube secured on the roller of the main body for rotating the roller of the main body, and a driven wheel secured on an end of the shaft tube for rotating the shaft tube; and

5 the motorized drive mechanism is mounted on the main body and includes a motor, a drive wheel mounted on and rotated by the motor, and a driving member mounted between the drive wheel and the driven wheel of the transmission mechanism so that the driven wheel of the transmission mechanism is rotated by the drive wheel of the motorized drive mechanism.

10 Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a partially exploded perspective view of a Venetian blind in accordance with the preferred embodiment of the present invention;

15 Fig. 2 is a partially perspective assembly view of the Venetian blind in accordance with the preferred embodiment of the present invention;

Fig. 3 is a front plan view of the Venetian blind in accordance with the preferred embodiment of the present invention;

20 Fig. 4 is a top plan cross-sectional assembly view of the Venetian blind as shown in Fig. 2;

Fig. 5 is a partially exploded perspective view of a Venetian blind in accordance with another embodiment of the present invention;

Fig. 6 is a top plan cross-sectional assembly view of a Venetian blind in accordance with another embodiment of the present invention;

5 Fig. 7 is a perspective assembly view of a Venetian blind in accordance with another embodiment of the present invention; and

Fig. 8 is a partially exploded perspective view of a Venetian blind in accordance with another embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

10 Referring to the drawings and initially to Figs. 1-4, a Venetian blind in accordance with the preferred embodiment of the present invention comprises a main body 1, a transmission mechanism 12, and a motorized drive mechanism 2.

15 The main body 1 includes a headrail 11, a plurality of slats 13 mounted on the headrail 11, and a roller 131 rotatably mounted in the headrail 11 and connected to the slats 13 for lifting and lowering the slats 13 by rotation of the roller 131.

20 The transmission mechanism 12 is mounted on the main body 1 and includes a support 120 mounted in the headrail 11 of the main body 1, a shaft tube 123 rotatably mounted in the support 120 and secured on the roller 131 of the main body 1 for rotating the roller 131 of the main body 1, and a driven

wheel 122 secured on an end of the shaft tube 123 for rotating the shaft tube 123.

The motorized drive mechanism 2 is mounted on the main body 1 and includes an attachment bracket 21 mounted on a side of the headrail 11 of the main body 1, a motor 22 mounted in the attachment bracket 21, a drive wheel 23 mounted on and rotated by the motor 22, and a driving member 3 mounted between the drive wheel 23 and the driven wheel 122 of the transmission mechanism 12 so that the driven wheel 122 of the transmission mechanism 12 is rotated by the drive wheel 23 of the motorized drive mechanism 2. The attachment bracket 21 of the motorized drive mechanism 2 has a substantially U-shaped cross-section and has a side formed with a hook 210 hooked on the side of the headrail 11 of the main body 1. Preferably, each of the drive wheel 23 of the motorized drive mechanism 2 and the driven wheel 122 of the transmission mechanism 12 is a toothed wheel, and the driving member 3 of the motorized drive mechanism 2 is an endless cord having a plurality of balls 30 meshing with the drive wheel 23 of the motorized drive mechanism 2 and the driven wheel 122 of the transmission mechanism 12.

In addition, the main body 1 further includes a cover 14 mounted on the transmission mechanism 12 and the motorized drive mechanism 2 to cover the drive wheel 23 of the motorized drive mechanism 2 and the driven wheel 122 of the transmission mechanism 12.

In addition, the transmission mechanism 12 further includes an endless lift cord 121 removably mounted on the driven wheel 122, and an outer cover 124 removably mounted on the support 120 to cover the driven wheel 122.

5 In practice, the outer cover 124 is removed from the support 120 to detach the lift cord 121 from the driven wheel 122. Then, the driving member 3 is mounted between the drive wheel 23 and the driven wheel 122 of the transmission mechanism 12, and the cover 14 is mounted on the transmission mechanism 12 and the motorized drive mechanism 2 to cover the drive wheel 10 23 of the motorized drive mechanism 2 and the driven wheel 122 of the transmission mechanism 12, thereby forming the Venetian blind.

In operation, the drive wheel 23 is rotated by the motor 22 to move the driving member 3 which rotates the driven wheel 122 which rotates the shaft tube 123 which rotates the roller 131 so as to lift and lower the slats 13 by 15 rotation of the roller 131.

Accordingly, the motorized drive mechanism 2 is operated to lift and lower the slats 13 automatically, so that the Venetian blind needs not to provide the lift cord 121, thereby preventing a child from being tangled by the lift cord 121 so as to ensure the environmental safety of the house. In addition, the 20 motorized drive mechanism 2 can be controlled by a remote controller, thereby facilitating a user operating the Venetian blind to lift and lower the slats 13.

Further, the Venetian blind is assembled easily and conveniently, thereby facilitating the user mounting the Venetian blind.

Referring to Fig. 5, the motorized drive mechanism 2 and the transmission mechanism 12 are integrally combined with each other, thereby 5 facilitating the user mounting the Venetian blind.

Referring to Fig. 6, each of the drive wheel 23 of the motorized drive mechanism 2 and the driven wheel 122 of the transmission mechanism 12 is a sprocket 4 and 40, and the driving member 3 of the motorized drive mechanism 2 is an endless chain 41 mounted between and meshing with the 10 sprockets 4 and 40 of the motorized drive mechanism 2 and the transmission mechanism 12.

Referring to Fig. 7, each of the drive wheel 23 of the motorized drive mechanism 2 and the driven wheel 122 of the transmission mechanism 12 is a belt wheel 5 and 50, and the driving member 3 of the motorized drive mechanism 2 is an endless belt 51 mounted between and meshing with the belt 15 wheels 5 and 50 of the motorized drive mechanism 2 and the transmission mechanism 12.

Referring to Fig. 8, each of the drive wheel 23 of the motorized drive mechanism 2 and the driven wheel 122 of the transmission mechanism 12 is a 20 gear 6 and 60, and the driving member 3 of the motorized drive mechanism 2 is an endless toothed belt 61 mounted between and meshing with the gears 6 and 60 of the motorized drive mechanism 2 and the transmission mechanism 12.

Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended

5 claim or claims will cover such modifications and variations that fall within the true scope of the invention.